

## **IN THE CLAIMS:**

I claim:

1. A method for assessing ecological risk to receptors, comprising:
  - (a) obtaining a representative sample of rodents from a contaminated site;
  - (b) obtaining a representative sample of rodents from an animal reference site;
  - (c) performing a first sperm analysis of the rodents from the contaminated site;
  - (d) performing a second sperm analysis of the rodents from the animal reference site; and
  - (e) comparing at least one result of the first sperm analysis with at least one result of the second sperm analysis.
2. The method of claim 1, wherein step (a) includes obtaining a representative sample of mice at the contaminated site.
3. The method of claim 1, wherein step (b) includes trapping a representative sample of mice at the animal reference site.
4. The method of claim 1, wherein the first and second sperm analysis include measuring sperm count.
5. The method of claim 1, wherein the first and second sperm analysis include measuring sperm motility.
6. The method of claim 1, wherein the first and second sperm analysis include measuring sperm abnormality.
7. The method of claim 1, further comprising corroborating the first and second sperm analysis with additional data.
8. The method of claim 7, wherein corroborating includes corroborating the first and second sperm analysis with additional data wherein the additional data relates to species diversity.

9. The method of claim 7, wherein corroborating includes corroborating the first and second sperm analysis with additional data wherein the additional data relates to population size.

10. The method of claim 7, wherein corroborating includes corroborating the first and second sperm analysis with additional data wherein the additional data relates to sex ratio.

11. The method of claim 7, wherein corroborating includes corroborating the first and second sperm analysis with additional data wherein the additional data relates to lactation state.

12. The method of claim 7, wherein corroborating includes corroborating the first and second sperm analysis with additional data wherein the additional data relates to pregnancy.

13. A method for assessing ecological risk to receptors, comprising:

(a) obtaining rodents from animal study sites wherein the animal study sites include at least two burning pads with high hazard quotients for at least one chemical;

(b) obtaining rodents from animal reference sites wherein the animal reference sites correspond to the animal study sites and contain low hazard quotients for the at least one chemical;

(c) removing a vas deferens from each of the rodents from the animal reference sites and the animal study sites and assessing sperm motility;

(d) removing an epididymis from the rodents and assessing sperm count and sperm abnormality;

(e) obtaining a sample from the epididymis and assessing sperm morphology;  
and

(f) comparing results of assessment of the rodents from the animal reference sites with results of assessment of the rodents from the animal study sites.